DETAILED DESCRIPTION OF THE INVENTION

[0029] The invention is described hereinafter with reference to a non-limiting set of embodiments.

[0030] In particular, the invention is described in relation to SIP signalling in a 3G IMS mobile communications network. However, the invention is not limited to such signalling or such a network.

[0031] Referring to FIG. **3**, two user agents **10** and **11** are shown. A first user, using user agent **10**, wishes to start a conference call involving user agent **11** and sends a SIP INVITE message **21** to a well-known URI at an operator to initiate the conferencing process. That URI could be stored by the user agent **10**. The INVITE message **21** indicates that user agent **10** wishes to initiate a conference, and the Request-URI could suitably take the form:

[0032] sip:conferences@sonera.fi

[0033] The INVITE message could include details of the type of conference required, for example a preferred data rate. These details could be contained in the media components listed in the Session Description Protocol (SDP) payload of the INVITE **21**.

[0034] The message **21** is received at a conference server **12** which is preferably a generic user agent server. At this stage, the server **12** could authenticate the conference request by transmitting a SIP message containing an authentication challenge to the user agent **10** requesting details such as a username and a password. In this case, the user would then need to provide such details, i.e. valid authentication credentials, in order for the conference request to be authorised.

[0035] Either in response to receiving message **21**, or in response to receiving valid authentication information from user agent **10**, the server **12** allocates a dynamic SIP URI to be used for the requested conference. The dynamic URI identifies a resource **13** that is available to be used for supporting the requested conference according to the specifications listed by the first user in the INVITE **21**. The network is arranged to route to the resource, or the unit that provides the resource, communications directed to that address. To facilitate this, the server is preferably arranged to allocate addresses for conferencing according to a pre-set pattern so that they will all refer to a suitable conferencing resource. The server **12** may reserve this resource so that it remains available until the requested conference begins. Alternatively, no resource may be reserved by the server **12** but instead an available resource could be located at the time when the requested conference is initiated. The resource is capable of establishing point-to-point connections with a terminal of each participant in a conference call. It can merge the traffic signals it receives from each terminal and transmit the merged signals to the other terminals that are parties to the conference call. Those traffic signals could carry voice data or other data such as video or graphical (e.g. white boarding) data. The resource could be data handling capacity, bandwidth or any other resource necessary for sustaining a conference call. The resource could be provided by physical equipment such as a part of a server.

[0036] The dynamic URI is transmitted to user agent **10** by conference server **12** in a SIP message **22**. The message **22** is preferably a redirection message with a code in the 3xx range, and the URI is preferably contained in the contact field of the message. An illustrative example of the form that the contact field could suitably take is:

[0037] Contact: <sip:DKLSKX87KKJ989SHFKJH@conference.sonera.fi>

[0038] On receipt of the redirection message including the allocated URI, the user agent **10** then transmits an INVITE message **23** to the URI. The URI identifies the reserved conference resource **13**, and responsive to receiving the INVITE message **23**, the resource **13** sends an acknowledgement, such as a 200 OK message **24**, back to user agent **10**.

[0039] Once user agent **10** receives the 200 OK message, the first user can then refer the allocated URI to a second user at user agent **11**. A further message, such as a SIP REFER message **25**, including the URI is transmitted from user agent **10** to user agent **11**. The REFER could suitably take the form:

[0040] REFER sip:user_b@pp.radiolinja.fi SIP/2.0

[0041] with the following header:

[0042] Refer-To: sip:DKLSKX87KKJ989SHFKJH@conference.sonera.fi;

[0043] Method=INVITE

[0044] Alternatively, the URI could be sent from the first user to the second user in another way.

[0045] By the above mechanism, a user can reserve a conference resource on the fly. Without any significant input on the part of the user, other participants can be connected together to form a conference call.

[0046] In response to receiving the REFER message from user agent **10**, user agent **11** transmits an acknowledgement, such as a **202** accepted message **26**, back to user agent **10**.

[0047] User agent **11** now transmits a request message, such as an INVITE message **27**, to the reserved resource **13**, in response to which the resource **13** sends an acknowledgement, such as a 200 OK message **28**, to user agent **11**. The server **12** and resource **13** are able to communicate with each other. In this way, the server can acquire authentication information obtained by the resource from a user so that each user can be authenticated before being allowed to join the conference. For example, it may be desirable to check that a user has a subscription enabling him to take part in conferences. Details of subscriptions could be contained in authentication information. Alternatively, or additionally, a user may be required to input a PIN for transmission to the resource **13** to confirm his identity for security reasons.

[0048] Following message **28**, an acknowledgement, such as a NOTIFY message **29** with response code 200 OK, is sent from user agent **11** to user agent **10**, and the conference may begin.

[0049] It will be apparent that user agent **10** can also send or REFER the dynamic URI to a number of other users so that they can take part in the conference. A further alternative is that the REFER message **25** could be directed to the conference URI. In other words, instead of referring user B to the conference, the conference could be referred to user B. The same set of messages could be used as described above, but in this case they are used with dial-out semantics.

[0050] A summary of the messages required to set up a conference according to a preferred embodiment of the invention is given below.

[0051] **21** INVITE to sip:conferences@sonera.fi

[0052] **22** 3xx redirection including dynamic URI

[0053] **23** INVITE to URI

[0054] **24** 200 OK

[0055] **25** REFER to UA **11**

[0056] **26** 202 accepted